Partnering with a Community Clinic to Provide Diabetes Self-Management Services Utilizing a Telehealth Approach

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Objectives

- Discuss disparities in diabetes affecting ENC
- Describe the challenges experienced by people with diabetes who also have elevated symptoms of depression
- Discuss the cultivation of a partnership with Kinston Community Health Clinic
- Describe the development of the Diabetes Self-Management Study and components of the Diabetes Self-Management Intervention
- Discuss various program components of the diabetes self-management research study
Diabetes

A group of diseases that have in common, the condition of too much blood glucose or blood sugar.

The excess sugar in the blood occurs because of a problem with the hormone, insulin, which the body requires to metabolize, or break down the glucose into units of energy needed by the body.

Glucose or sugar builds up in the blood because the pancreas does not produce insulin, produces insufficient amounts of insulin, or the body’s cells are resistant to insulin.
Diabetes - Common Types

- **Type 1 diabetes**: results from the body's failure to produce insulin, and presently requires the person to inject insulin. (Also referred to as *insulin-dependent* diabetes mellitus.

- **Type 2 diabetes**: results from *insulin resistance*, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency. (Formerly referred to as *non-insulin-dependent* diabetes mellitus, *NIDDM* for short, and *adult-onset* diabetes.)

- **Gestational diabetes**: is when pregnant women, who have never had diabetes before, have a high blood glucose level during pregnancy. It may precede development of type 2 DM.
Monitoring Blood Glucose

- **Home Self-monitoring:**
  - Blood glucose test using a diabetes monitor - at morning fasting, other times of day
  - Diabetes Log - record results along with any diabetes medication
  - Diet and Activity may also be recorded

- **Health Clinic**
  - Laboratory testing - **A1c** (hemoglobin A1c) - blood test that reflect average blood glucose level for *past 3 months*
  - Comparison of last 2 A1c tests to determine trend, need for treatment plan change, other evaluation
  - Assessment of any symptoms
  - Assessment of eyes and feet (annual) skin signs of poor healing, sensation in hand, feet
  - Special testing and referral as indicated

## Diabetes Complications

<table>
<thead>
<tr>
<th>Heart disease and stroke</th>
<th>Kidney disease</th>
<th>Dental disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>Nervous system disease</td>
<td>Increased susceptibility to other illnesses</td>
</tr>
<tr>
<td>Blindness and eye problems</td>
<td>Amputations</td>
<td>Depression</td>
</tr>
</tbody>
</table>

Diabetes and Depression

- People with diabetes are twice as likely to have depression, which can complicate diabetes self-management.

- Depression is associated with a 60% increased risk of developing Type 2 diabetes.

- Depression can not only undermine diabetes self-management, but it is associated with stress which in turn, increases blood glucose levels.
Depression

Depression is a common mental disorder affecting mood, thoughts, body

Symptoms
- Loss of interest or pleasure
- Feelings of guilt or low self-worth
- Disturbed sleep
- Disturbed appetite
- Low energy
- Poor concentration

Behaviors
- Withdrawal, isolation
- Irritability
- Crying
- Suicide
Reducing Complications of Diabetes

**Receive regular preventive care**
Participate in diabetes education/training - knowledge, problem solving and coping skills

**Monitor blood glucose**
Manage hypertension (high blood pressure)

**Control cholesterol**
Take medications as prescribed

**Eat a healthy diet**
Be physically active - exercise, dance, move

**Lose excess weight**
Adults† with Diagnosed Diabetes

2008 Age-Adjusted Estimates of Percentage

Adults† with Diagnosed Diabetes in North Carolina

2008 Age-Adjusted Estimates of Percentage

<table>
<thead>
<tr>
<th>Diabetes deaths per 100,000 population</th>
<th>1999 – 2003</th>
<th>Ratio</th>
<th>2004 – 2008</th>
<th>Ratio</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>All</td>
<td>97.5</td>
<td></td>
<td>93.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>82.4</td>
<td>1.0</td>
<td>80.2</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>African American or Black</td>
<td>173.5</td>
<td>2.1</td>
<td>D</td>
<td>163.8</td>
<td>2.0</td>
</tr>
<tr>
<td>American Indian</td>
<td>158.0</td>
<td>1.9</td>
<td>C</td>
<td>138.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>41.4</td>
<td>0.5</td>
<td>A</td>
<td>36.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>47.3</td>
<td>0.6</td>
<td>A</td>
<td>45.9</td>
<td>0.6</td>
</tr>
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</table>
Kinston Community Health Center (KCHC)
Kinston Community Health Center (KCHC)

- Federally Qualified health Center (FQHC)-Funded by federal government to provide healthcare regardless of ability to pay or of citizenship status
- Provides comprehensive primary care family medicine, obstetrics/gynecology and dental services
- Infrastructure with telecommunication networks
- Community Outreach programs geared toward special populations: farm seasonal workers, elderly, homeless and persons living with HIV/AIDS
ECU Partnership

- **9/2009** ECU Department of Psychiatric Medicine supports its inaugural Clinical Psychology Internship Training Program to launch an Integrated Behavioral Medicine service at KCHC

- **3/2010** Psychology Interns (BSOM) provide integrated behavioral health. All new patients screened for depressive symptoms (PHQ-9) as part of KCHC enrollment process

- **10/2010** ECU CHDR/Psychology Department develops a project to train doctoral students and pilot a diabetes self-management intervention at KCHC
A sustainable partnership between KCHC and ECU

Increase capacity building for KCHC - with interventional research and referral loop to clinical providers

Provide ECU an environment with a well developed infrastructure in which to offer mental health services and a training venue for future providers
APA defined "telehealth" as health services in which health-care professionals and their clients use interactive, real-time communication media to connect across distances.

An emerging area in which generally recognized standards for professional training and practice are not yet in place

American Psychological Association, Monitor Aril 2000, 31, No.4
Telehealth

- Use with rural and underserved to increase access
- Provides ease of use, no “wait time” for appointment
- Hands-free speaker phone to facilitate various instructions
- Augments periodic clinic visit or, as alternative to frequent visits
- Reduces travel time and costs
Telehealth and the 4 “C”s

- Contracting
- Competence
- Confidentiality
- Control
Diabetes Self-Management Study

Purpose

To examine efficacy and feasibility of a telephone-based program to promote diabetes self-management in patients with diabetes and who are also experiencing elevated depressive symptoms.

Objective

To improve diabetes management and outcome through delivery of behavioral and psychological interventions aimed at increasing motivation for diabetes self-management to reduce disease progression and improve physical and psychological functioning.
Study Methods

Patient identification/enrollment
Adult patients with diabetes and PHQ-9 scores >6 (and/or who endorse depression question #2).

Face to face enrollment/assessment
- Informed Consent
- Pre treatment Measures
- Training in diabetes monitor
- Training in speaker telephone use
- Diabetes self-management kit
Diabetes Self-Management Kit

ECU TOTE BAG

- Diabetes meter
- Diabetes meter strips
- Diabetes meter lancets
- Participant Diabetes Resource Manual
- Speaker Telephone
Study Methods (cont)

Treatment Protocol

6 telephone based, manualized education sessions
Ongoing assessment of mood and referral back to PCP if needed for increasing depressive symptoms

Exit

Post treatment measures
Referral back to PCP if indicated for f/up of depressive symptoms
Gas cards
Outcome Measures

- PHQ-9 Depression Screen
- Biological markers - eg. A1c
- SF-12 Health Related Quality of Life (QOL)
- Diabetes Self- Efficacy
- Medical Adherence Scale
- DM Knowledge Test
- Diabetes Distress Scale
Intervention Overview

1. Program Overview - diabetes and depression
2. Diabetes Self-Management
3. Food as Fuel
4. Healthy Active Lifestyle
5. Diabetes Complications
6. Lifelong Success
   ❖ Resource reference guide
ECU Diabetes Self-Management and Support Project

Informed Consent Session

Enrollment:  
- Face-to-face Pretreatment Measures  
- Instruction Diabetes monitor Telephone

KCHC Patient Screening:  
Diabetes Diagnosis PHQ-9 >6  
Patient age ≥18 years

Enrollment session today?  

Interest in Project?  

Offer alternate materials

Inform PCP for symptoms

Treatment Protocol:  
6 Telephone Modules

Exit:  
- Post-treatment Measures  
- Refer as needed
Program Feasibility

- **Partnership**
  - Positive Professional Provider/Staff Relationships
  - Study Referrals
  - Feedback to PCP

- **Telehealth**
  - Ease of Equipment Use
  - Land line availability
  - Good cell phone reception/Clarity of Sound
  - Consistent Telephone Appointments
Study Outcomes

Patient Outcomes

Diabetes self-management
Improved self-efficacy and medication adherence at 3 months after treatment ends

Diabetes Outcomes
Improvement in A1c, blood pressure, and lipid parameters at 3 months after treatment ends

Psychosocial functioning
Improvement in depressive symptomology and quality of life at 3 months after treatment ends

Health care utilization
Fewer clinic visits and hospitalization related to diabetic exacerbations at end of 12 months
Patient Demographics

*N = 17*

**Gender:**
88% female (*n* = 15)

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>A1C Normal Baseline</th>
<th>A1C Patient Baseline</th>
<th>PHQ-9 Normal Baseline</th>
<th>PHQ-9 Patient Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>56</td>
<td>≤6%</td>
<td>9.2</td>
<td>&lt;6 Q#2 = 0</td>
<td>13</td>
</tr>
<tr>
<td>Range</td>
<td>38-73</td>
<td>Less than 7%</td>
<td>5.8-14.3</td>
<td>2-23</td>
<td></td>
</tr>
</tbody>
</table>
Patient Demographics (cont)

Race:
76% African American ($n = 13$)
18% Caucasian ($n = 3$)
6% American Indian ($n = 1$)
Education:
18% High School ($n = 3$),
47% Some College ($n = 8$),
18% College Degree ($n = 3$)
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18% High School ($n = 3$),
47% Some College ($n = 8$),
18% College Degree ($n = 3$)
Patient Demographics (cont.)

Patient Living Distance from KCHC:

76% 0.2 – 10 miles (n = 13)
24% 10.1 – 21 miles (n = 4)

Average Distance 6.8 miles

Range Distance .2- 20.2 miles
Observations from Interventionists